

WHAT IS CLAIMED IS:

1. A multiple node network comprising a plurality of terminal nodes, a management node at least initially managing the terminal nodes, and a bus arranged to connect the respective terminal nodes and the management node to one another, the terminal nodes and the management node communicating with one another using a respective frame that includes at least an identifier field and a data field, at least some of the terminal nodes transferring a frame to the management node in which the data field contains a discriminative code, the management node arbitrating a contention between one or more of terminal nodes by comparing the identifier field of one terminal node in contention with the identifier field of another terminal node in contention, and at least some of the terminal nodes being capable of calculating a time delay based upon at least a portion of the discriminative code in the data field when arbitration fails and re-transferring the frame to the management node after the time delay.

2. The network as set forth in Claim 1, wherein at least two of the terminal nodes have the same identifier field as one another, and the arbitration fails when the terminal nodes having the same identifier field simultaneously transfer the respective frames.

3. The network as set forth in Claim 1, wherein the data field selectively comprises a plurality of bits corresponding to the discriminative code, and said at least some of the terminal nodes calculate the respective time delay using some of the bits.

4. The network as set forth in Claim 3, wherein the data field comprises a plurality of bit units, and said at least some of the terminal nodes select one of the bit units at a time to calculate the time delay.

5. The network as set forth in Claim 4, wherein the bit unit forms a byte.

6. The network as set forth in Claim 4, wherein the bit unit represents a numerical value, and said at least some of the terminal nodes multiply the numerical value by a transfer time of one bit to calculate the time delay.

7. The network as set forth in Claim 1, wherein each one of the terminal nodes transfers the frame to the management node to obtain a network address from the management node.

8. The network as set forth in Claim 1, wherein said each one of the terminal nodes belongs to a component of a system, and the discriminative code includes a number allotted to the component.

9. The network as set forth in Claim 8, wherein the number is any identifier selected from the group consisting of a product number, a part number, a manufacturing number and a manufacturer number for the component.

10. The network as set forth in Claim 1, wherein the network is configured at least to control a plurality of engines that power a watercraft, at least two of the terminal nodes control the respective engines, each one of the terminal nodes that controls each one of the engines has the same identifier field as one another and has a discriminative code that is different from one another.

11. A multiple node network comprising a plurality of terminal nodes, each one of the terminal nodes communicating with a component of a system, a management node communicating with the terminal nodes, and a bus arranged to connect the terminal nodes and the management node to one another, the terminal nodes initially communicating with the management node using a frame that includes at least a data field having a discriminative number allotted to the component, at least some of the terminal nodes transferring the frame to the management node, and at least some of the terminal nodes capable of re-transferring the frame to the management node after a time delay that is calculated based upon at least a portion of the discriminative number when a plurality of the terminal nodes has simultaneously transferred the respective frames to the management node.

12. The network as set forth in Claim 11, wherein the system is a vehicle, the component is a drive unit of the vehicle, and the discriminative number is any one of a product number, a parts number, a manufacturing number and a manufacturer number of the drive unit or a member related to the drive unit.

13. The network as set forth in Claim 12, wherein the vehicle is a watercraft, and the drive unit is an outboard motor that propels the watercraft, the outboard motor has an engine as the member, and the discriminative number is any one of a product number, a parts number, a manufacturing number or a manufacturer number of the outboard motor or the engine.

14. The network as set forth in Claim 11, wherein the data field comprises a plurality of bits corresponding to the discriminative number, at least some of the terminal nodes calculates the time delay using some of the bits.

15. The network as set forth in Claim 11, wherein at least some of the terminal nodes are further capable of repeatedly recalculating a time delay based upon at least another portion of the discriminative number and then re-transmitting the frame to the

management node after the recalculated time delay until said terminal nodes no longer simultaneously transmits the respective frames to the management node.

16. A communication method between a plurality of nodes in a network, the nodes including terminal nodes and a management node configured to communicate with the terminal nodes, the method comprising creating a frame that includes at least an identifier field and a data field, the data field having a discriminative code, transferring the frame to the management node from at least a plurality of the terminal nodes, comparing the identifier field of one terminal node with the identifier field of another terminal node to arbitrate between the terminal nodes in contention when the terminal nodes simultaneously transfer the respective frames to the management node, determining whether the arbitration fails, re-sending the frames to the management node from the terminal nodes when the arbitration has failed, calculating a time delay based upon at least a portion of each one of the discriminative codes, and delaying the re-sending of the frames from each terminal node in contention by the calculated time delay.

17. The communication method as set forth in Claim 16, wherein the data field includes a plurality of bits corresponding to the discriminative code, and calculating time delay using some of the bits.

18. The communication method as set forth in Claim 17, wherein the data field includes a plurality of bit units, the method additionally comprising selecting one of the bit units to use in the calculation of the time delay.

19. The communication method as set forth in Claim 18, wherein the bit unit represents a numerical value, and the calculation of the delay time involves multiplying the numerical value by a transfer time of one bit.

20. The communication method as set forth in Claim 19, wherein the terminal nodes belong to respective components of a system, the discriminative code includes a number allotted to each one of the components.

21. A communication method between a plurality of nodes in a network, the nodes including terminal nodes and a management node configured to communicate with the terminal nodes, each one of the terminal nodes belonging to a component of a system, the method comprising creating a frame that includes at least a data field having a discriminative number allotted to the component, transferring the frame to the management node from at least some of terminal nodes, repeating the transferring of the frames to the management node from a plurality of terminal nodes when a contention

arises that cannot be solved by arbitration, calculating a time delay based upon at least a portion of the discriminative number, and delaying the repeated transfer of the frames from the terminal nodes in contention by the calculated delay time.

22. The communication method as set forth in Claim 21, wherein the system is a vehicle, the component is a drive unit of the vehicle, and creating the frame involves recalling the discriminative number from memory, where the discriminative number is either a parts number, a manufacturing number or a manufacturer number of the drive unit or a member related to the drive unit.

23. The communication method as set forth in Claim 21 additionally comprising repeatedly recalculating a time delay based upon at least another portion of the discriminative number and then re-transmitting the frame to the management node after the recalculated time delay until said terminal nodes in contention no longer simultaneously transmit the respective frames to the management node.